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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/713,427	11/17/2003	Jang-Kun Song	6192.0270.C1	2744

7590 02/01/2006

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EXAMINER

MCPHERSON, JOHN A

ART UNIT	PAPER NUMBER
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1756

DATE MAILED: 02/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/713,427

Applicant(s)

SONG, JANG-KUN

Examiner

John A. McPherson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 November 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 27,31-35 and 37-50 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 33-35 and 38-48 is/are allowed.
- 6) ☒ Claim(s) 27,31,32,37,49 and 50 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/5/05 has been entered.

Response to Amendment

2. The Amendment filed 10/5/05, entered with the Request for Continued Examination filed 11/7/05, successfully overcomes the rejection set forth in paragraph 3 of the Office Action mailed 7/7/05. Accordingly, this rejection has been withdrawn.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 49 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one

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skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 49 is drawn to a method comprising the step of developing an organic insulating layer to form a protrusion having a width of about 3 μm to about 15 μm and a spacer taller than the protrusion having a width of about 5 μm to about 40 μm .

However, the specification describes forming protrusions having a width of 3-15 μm (i.e. not about 3-15 μm) and a space having a width of 5-40 μm (i.e. not about 5-40 μm).

The inclusion of the term "about" broadens the scope of the claim beyond what is described in the original disclosure, therefore this is viewed as new matter.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 27, 31, 32 and 37 are rejected under 35 U.S.C. 102(e) as being anticipated by US 2004/0075798 to Inoue et al. (Inoue) for the reasons of record as set forth in paragraph 2 of the Office Action mailed 7/13/04, and as further discusses below.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 27, 31, 32, 37 and 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 2004/0075798 to Inoue et al. (Inoue) in view of US 6,897,918 to Nonaka et al. (Nonaka).

Inoue discloses a method of fabricating a liquid crystal display comprising the steps of providing a color filter substrate comprising a substrate, a black matrix, a color filter, and a common electrode; coating a positive or negative photosensitive material on the color filter substrate; exposing the photosensitive material to different values of light through a single mask having shaded, semi-shaded and unshaded portions; and developing the photosensitive material to form spacers and protrusions, wherein the spacers have a film thickness greater than the protrusions. See paragraphs [0157] to [0181], and Figures 18a-f. Additionally, the protrusions may cross from one pixel to the next, thereby overlapping the black matrix provided between the pixels (for example, see Figures 1, 3 and 6), and the width of the protrusions is disclosed as 10 μm (see paragraph [0091]. However, Inoue does not disclose the width of the spacer.

Nonaka discloses a color filter comprising a transparent substrate, color layers of plural colors, a transparent electrode and a protrusion for controlling liquid crystal alignment laminated in this order, further comprising plural fixed dot spacers (see the

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abstract), wherein the spacer dot has most preferred area of 100 to $500\ \mu\text{m}^2$, and is exemplified as being formed in a pattern of $20\ \mu\text{m}$ square at the bottom and $10\ \mu\text{m}$ square at the top, and the protrusion is exemplified as having a trapezoid sectional form with a bottom side length (i.e. width) of $12\ \mu\text{m}$ and a top side length (i.e. width) of $10\ \mu\text{m}$. See column 11, lines 39-64 and column 15, lines 31-60 and Figure 2. It would have been obvious to one skilled in the requisite art to utilize a width of 10 - $20\ \mu\text{m}$ for the spacers, as taught by Nonaka, as the width of the spaces in the process of Inoue because it is taught that spacers having this size are large enough so that they are not destroyed by the pressure applied when the liquid crystal display is produced, yet small enough not to cause display irregularities.

6. Claims 27, 31, 32, 37 and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 2004/0075798 to Inoue et al. (Inoue) in view of JP 11-352489 (JP '489), using patent family member US 2005/0140887 to Song et al. (Song) as an English-language description of JP '489.

Inoue discloses a method of fabricating a liquid crystal display comprising the steps of providing a color filter substrate comprising a substrate, a black matrix, a color filter, and a common electrode; coating a positive or negative photosensitive material on the color filter substrate; exposing the photosensitive material to different values of light through a single mask having shaded, semi-shaded and unshaded portions; and developing the photosensitive material to form spacers and protrusions, wherein the spacers have a film thickness greater than the protrusions. See paragraphs [0157] to

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[0181], and Figures 18a-f. Additionally, the protrusions may cross from one pixel to the next, thereby overlapping the black matrix provided between the pixels (for example, see Figures 1, 3 and 6). However, Inoue does not disclose forming a black matrix having a second portion formed within the pixel region, and forming the protrusion overlapping the second portion.

JP '489 discloses a liquid crystal display comprising projection patterns formed on an upper substrate, wherein a black matrix is formed on the substrate so as to cover regions where disclination is generated by the protrusions (i.e. within the pixel region), and protrusions are formed over the black matrix. See the abstract and Figures 10-13 of JP '489, and paragraphs [0098]-[0105] of Song (which provides an English-language description of the embodiment disclosed in JP '489). It would have been obvious to one skilled in the requisite art to form a black matrix having a portion formed inside the pixels covering regions upon which protrusions are formed, as taught by JP '489, in the process of Inoue because it is taught that forming portions of the black matrix in regions upon which protrusions are to be formed prevents light leakage generated by disclination due to the protrusion patterns.

Allowable Subject Matter

7. Claims 33-35 and 38-48 are allowed.

Response to Arguments

8. Applicant's arguments filed 10/5/05 have been fully considered but they are not persuasive. With respect to the 35 USC 102 rejection over Inoue, Applicant argues that none of the embodiments shown in Inoue shows an identical invention as complete detail as is contained in claim 27. However, Inoue is directed to a "liquid crystal display and method of making the same" (see the title), therefore it is clear that the methods disclosed therein are useful for manufacturing the liquid crystal displays disclosed therein, including the disclosed displays comprising protrusion patterns extending from one pixel to another, thereby crossing the black matrix located between the pixels.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John A. McPherson whose telephone number is (571) 272-1386. The examiner can normally be reached on Monday through Friday, 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on (571) 272-1385. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

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you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



John A. McPherson
Primary Examiner
Art Unit 1756

JAM
1/28/06